

Nalco Docket No.: 7560-NES  
Customer No. 000049459

**OFFICIAL****CLAIMS**

1. (currently amended) A ~~polymeric~~ demulsifier composition comprising oligo-and polymeric reaction products of 0.8:1 to about 1.3:1 molar equivalents relative to the diglycidyl ethers of aliphatic diols, triglycidyl ethers of aliphatic triols, or tetraglycidyl ethers of aliphatic polyols of an amine having only two reactive amino hydrogens selected from the group consisting of 2-(2-aminoethoxy) ethanol and tris(hydroxymethyl)aminomethane and mixtures thereof; and a glycidyl ether compound selected from the group consisting of diglycidyl ethers of aliphatic diols, triglycidyl ethers of aliphatic triols, and tetraglycidyl ethers of aliphatic polyols, or mixtures thereof.
2. (currently amended) The ~~polymeric~~ demulsifier composition of claim 1 comprising the oligo- and polymeric reaction products of 0.8:1 to about 1.3:1 molar equivalents relative to the diglycidyl ether of a mixture of an amine having only two reactive amino hydrogens selected from the group consisting of 2-(2-aminoethoxy) ethanol and tris(hydroxymethyl)aminomethane and mixtures thereof; and a second amine monomer having only two reactive amino hydrogens and a tertiary amine group; ~~and with~~ a glycidyl ether compound selected from the group consisting of diglycidyl ethers of aliphatic diols, triglycidyl ethers of aliphatic triols, and tetraglycidyl ethers of aliphatic polyols, ~~or~~ and mixtures thereof.
3. (currently amended) The ~~polymeric~~ demulsifier composition of claim 2 ~~further comprising~~ wherein an amine capping monomer, having one or two reactive amino hydrogens, is subsequently reacted with terminal epoxy groups of the oligo-and polymeric reaction products.
4. (currently amended) The ~~polymeric~~ demulsifier composition of claim 3 wherein the amine capping monomer is selected from the group consisting of diethanolamine, N,N,N'-(trimethyl)-1,3-propanediamine, N-Methyl-D-glucamine and mixtures thereof.

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5. (currently amended) The ~~polymeric~~ demulsifier composition of claim 2 wherein the diglycidyl ether of an aliphatic diol is selected from the group consisting of the diglycidyl ether of neopentyl glycol, diglycidyl ether of 1,4 butanediol, diglycidyl ether of ethylene glycol, diglycidyl ether of polyethylene glycol having a number average molecular weight, Mn, of about 526, and mixtures thereof, and the second amine monomer is (dimethylamino)-propylamine.
6. (currently amended) The ~~polymeric~~ demulsifier composition of claim 4 ~~further comprising~~ wherein an N-alkylating agent is reacted with amine groups of the oligo-and polymeric reaction products.
7. (currently amended) The ~~polymeric~~ demulsifier composition of claim 6 wherein the N-alkylating agent is an epihalohydrin-reacted polyalkoxide.
8. (currently amended) The ~~polymeric~~ demulsifier composition of claim 7 wherein the epihalohydrin is epichlorohydrin.
9. (currently amended) The ~~polymeric~~ demulsifier composition of claim 6 wherein the N-alkylating agent further comprises a polyoxyalkylene group.
10. (currently amended) The ~~polymeric~~ demulsifier composition of claim 9 wherein the polyoxyalkylene group is selected from the group consisting of polyethoxy groups, polypropyloxy groups and mixtures thereof.
11. (currently amended) The ~~polymeric~~ demulsifier composition of claim 10 wherein the polyoxyalkylene group has a propoxy to ethoxy ratio of from 9 to 1 to about 1 to 9.
12. (currently amended) The ~~polymeric~~ demulsifier composition of claim 9 wherein the polyoxyalkylene group is methoxy-capped polyethylene oxide.
13. (currently amended) The ~~polymeric~~ demulsifier composition of claim 6 wherein the N-alkylating agent is an epichlorohydrin capped polyoxyalkylene glycol methyl ether.

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14. (currently amended) The ~~polymeric~~ demulsifier composition of claim 6 further comprising at least one C<sub>1</sub> to C<sub>16</sub> alcohol and at least one acid-containing compound.
15. (currently amended) A ~~polymeric~~ demulsifier composition comprising: the oligo- and polymeric reaction products of about 0.8:1 to about 1.3:1 molar equivalents relative to the diglycidyl ether of an aliphatic diol of a mixture of a first amine-containing monomer having only two reactive amino hydrogens; and a second amine-containing monomer having only two reactive amino hydrogens and at least one tertiary amine group, and with a diglycidyl ether of an aliphatic diol.
16. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 15 wherein an amine capping monomer having one or two reactive amino hydrogens is subsequently reacted with terminal epoxy groups on the oligo- and polymeric reaction products.
17. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 16 wherein the amine capping monomer is selected from the group consisting of diethanolamine, N, N, N'- (trimethyl)-1,3-propanediamine, N-methyl-D-glucamine and mixtures thereof.
18. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 16 wherein the amine capping monomer further comprises at least one tertiary amine group.
19. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 18 ~~further comprising wherein~~ an N-alkylating agent is reacted with amine groups of the oligo- and polymeric reaction products.
20. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 19 wherein the N-alkylating agent comprises an epihalohydrin-reacted polyalkoxide.
21. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 20 wherein the epihalodrin is epichlorohydrin or epibromohydrin.
22. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 19 wherein the N-alkylating agent containing group further comprises a polyoxyalkylene group.

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23. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 22 wherein the polyoxyalkylene group is selected from polyethoxy groups, polypropyloxy groups and mixtures thereof.
24. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 22 wherein the polyoxyalkylene group is methoxy capped polyethylene oxide.
25. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 19 wherein the N-alkylating agent containing group is an epichlorohydrin capped polyoxyalkylene glycol methyl ether.
26. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 19 further comprising at least one C<sub>1</sub> to C<sub>16</sub> alcohol and at least one acid-containing compound.
27. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 15, wherein the diglycidyl ether of an aliphatic diol is selected from the group consisting of the diglycidyl ether of neopentyl glycol; the diglycidyl ether of butanediol; the diglycidyl ether of ethylene glycol; the diglycidyl ether of polyethylene glycol and mixtures thereof; and the second amine monomer is N, N-dimethylamino propylamine.
28. (currently amended) A ~~polymeric~~ demulsifier composition comprising, the oligo- and polymeric reaction products of an amine having only two reactive amino hydrogens, an epoxidized olefin having two epoxide groups, and a second amine monomer having only two reactive amino hydrogens and a tertiary amine group.
29. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 28, wherein an amine capping monomer having one or two reactive amino hydrogens is subsequently reacted with epoxy groups of the oligo- and polymeric reaction products.
30. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 29 wherein the amine capping monomer further comprises at least one tertiary amine group.

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31. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 30 comprising the oligo- and polymeric reaction products of an amine having only two reactive amino hydrogens, an epoxidized olefin having two epoxide groups, a triglycidyl ether of an aliphatic triol, and a second amine monomer having only two reactive amino hydrogens and a tertiary amine group.
32. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 29 ~~further comprising wherein~~ an N-alkylating agent is reacted with amine groups of the oligo- and polymeric reaction products.
33. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 32 wherein the N-alkylating agent is an epihalohydrin-reacted polyalkoxide compound.
34. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 33 wherein the epihalodrin is epichlorohydrin or epibromohydrin.
35. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 32 wherein the N-alkylating agent further comprises an oxyalkylene group.
36. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 35 wherein the oxyalkylene group is a polyoxyalkylene wherein the polyoxyalkylene group is selected from polyethoxy groups, polypropyloxy groups or mixtures thereof.
37. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 36 wherein the polyoxyalkylene group has a propoxy to ethoxy ratio of from 9 to 1 to about 1 to 9.
38. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 32 wherein the N-alkylating agent is an epichlorohydrin capped polyoxyalkylene glycol methyl ether.
39. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 35 wherein the polyoxyalkylene group is methoxy-capped polyethylene oxide.

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40. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 32 further comprising at least one C<sub>1</sub> to C<sub>16</sub> alcohol and at least one acid-containing compound.
41. (canceled)
42. (currently amended) A ~~polymeric~~ demulsifier composition comprising the oligo- and polymeric reaction products of at least one first amine having only two reactive hydrogens, selected from the group consisting of methylamine, ethylamine, propylamine, butylamine, sec-butylamine, isobutylamine, 3,3-dimethylbutylamine, hexylamine and benzylamine, 2-amino-1-butanol, 4-amino-1-butanol, 2-amino-2-methyl-1-propanol, 6-amino-1-hexanol, ethanolamine, propanolamine, tris(hydroxymethyl) aminomethane, D-glucamine, 3-amino-1,2-propanediol, 2-amino-2-methyl-1,3-propanediol, 2-amino-2-ethyl-1,3-propanediol, 3-(dimethylamino)propylamine, N,N-dimethylethylenediamine, N,N-diethylethylenediamine, 1-(2-aminoethyl)piperidine, 4-(2-aminoethyl)morpholine, 2-(2-aminoethyl)-1-methylpyrrolidine, 1-(2-aminoethyl)pyrrolidine, 2-(2-aminoethyl)pyridine, 2-(2-aminoethylamino)ethanol, piperazine, 2-methyl piperazine, 2,6-dimethylpiperazine, 2-(methylamido)piperazine, N,N'-bis(2-hydroxyethyl)ethylenediamine, N,N'-dimethylethylenediamine, N,N-dimethyl-1,4-phenylenediamine and N,N'-dimethyl-1,6-hexanediamine;
- (b) at least one second amine having only two reactive amino hydrogens and a tertiary amine group selected from the group consisting of 3-(dimethylamino)propylamine, N,N-dimethylethylenediamine, N,N-diethylethylenediamine, 1-(2-aminoethyl)piperidine, 4-(2-aminoethyl)morpholine, 2-(2-aminoethyl)-1-methylpyrrolidine, 1-(2-aminoethyl)pyrrolidine, and 2-(2-aminoethyl)pyridine;

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(c) at least one diepoxy-containing compound said diepoxy compound selected from the group consisting of: bis(2,3-epoxypropyl)ether, diglycidyl ether of 1,4-butanediol, diglycidyl ether of neopentyl glycol, diglycidyl ether of ethylene glycol, glycerol diglycidyl ether, diglycidyl ether of polyethyleneglycol, diglycidyl ether of polypropylene glycol, the diglycidyl ether from the reaction product of ethylene oxide with propylene oxide, diglycidyl ester of cyclohexane dimethanol and diglycidyl ester of a dimer acid, 1,2,3,4-diepoxybutane; 1,2,7,8-diepoxyoctane, 1,2,9,10-diepoxydecane and 1,2,5,6-diepoxcyclooctane;

(d) at least one amine capping monomer having one or two reactive amino hydrogens, wherein said capping monomer is reacted with terminal epoxy groups on said oligo- and polymeric reaction products, the amine capping monomer being selected from the group consisting of diethanolamine, diisopropanolamine, N-methyl-D-glucamine, N-methylpropylamine, dimethylamine, diethylamine, dipropylamine, diisopropylamine, N,N,N'-trimethyl-1,3-propanediamine, N,N,N' - trimethylethylenediamine, N,N-dimethyl-N'-ethylethylenediamine, N,N,N'-triethylethylenediamine; and

(e) at least one N-alkylating epichlorohydrin capped polyalkylene glycol methyl ether having the following formula:

$R8-O-[CH_2-CH(R9)-O]_n-CH_2-CH(OH)-CH_2-X$  where:

R8 is hydrogen, C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>6</sub>-C<sub>10</sub> aryl, 2-hydroxy-3-chloropropyl, or 2,3-oxopropyl,

R9 is hydrogen, or C<sub>1</sub> to C<sub>6</sub> alkyl,

X is a halogen atom, and n in the range of 1 to 120.

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43. (currently amended) The polymeric demulsifier composition according to claim 42, further comprising the oligo- and polymeric reaction product of an amine having only two reactive amino hydrogens selected from the group consisting of; 2-(2-aminoethoxy) ethanol;  $\text{CH}_3\text{OCH}_2\text{CH}_2\text{O}[\text{CH}(\text{CH}_3)\text{CH}_2\text{O}]_n\text{CH}_2\text{CH}(\text{NH}_2)\text{CH}_3$  where n is at least one;  $\text{CH}_3\text{-O-(CH}_2\text{CHR-O)}_n\text{-CH}_2\text{CH(-CH}_3\text{)NH}_2$  where n is at least one;  $\text{CH}_3\text{O(CH}_2\text{CH}_2\text{O)}_n\text{-(CH}_2\text{CHR-O)}_n\text{-CH}_2\text{-CH(-CH}_3\text{)-NH}_2$ , where R is H or  $\text{CH}_3$  and n is such that the overall  $\text{-CH}_2\text{CH}_2\text{-O-}$  to  $\text{-CH}_2\text{-CH(-CH}_3\text{)O-}$  ratio is 70/30; and  $\text{H}_2\text{N-CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{-OH}$ , a diepoxy-containing compound, and a triepoxy-containing compound.

44. (currently amended) A polymeric demulsifier composition comprising oligo-and polymeric reaction products of

(a) a first amine having only two reactive amino hydrogens selected from the group consisting of: ethanolamine, propanolamine, and polyoxyalkylamines according to the formula

$\text{R}_4\text{-(CH}_2\text{CH(R}_5\text{)O)}_n\text{-CH}_2\text{CH(CH}_3\text{)NH}_2$ , where  $\text{R}_4$  is  $\text{-OCH}_3$ ,  $\text{R}_5$  is hydrogen or  $\text{-CH}_3$ , and n is 1 to 45, 2-(2-aminoethylamino)ethanol, piperazine, N,N-bis(2-hydroxyethyl)ethylenediamine, and N,N'-dimethylethylenediamine and mixtures thereof;

(b) a diepoxy compound selected from the group consisting of diglycidyl ether of 1,4-butanediol, diglycidyl ether of neopentyl glycol, diglycidyl ether of ethylene glycol, diglycidyl ether of polyethyleneglycols, 1,2,3,4-diepoxybutane, 1,2,7,8-diepoxyoctane and mixtures thereof;

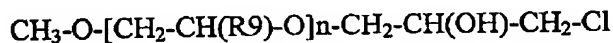
(c) an amine capping monomer having one or two reactive amino hydrogens subsequently reacted with terminal epoxy groups, selected from the group consisting of diethanolamine, N-methyl-D-glucamine, N-methylpropylamine, N,N,N'-trimethyl-1,3-propanediamine, N,N,N'-trimethylethylenediamine, and mixtures thereof, and;



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(d) an N-alkylating epichlorohydrin capped polyalkylene glycol methyl ether-containing group having the formula:



where n is 100 to 113 and R<sub>9</sub> is selected from the group consisting of hydrogen and a C<sub>1</sub> to C<sub>6</sub> alkyl group.

45. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 44, wherein (a) further comprises a second amine monomer having only two reactive amino hydrogens and a tertiary amine group selected from the group consisting of 3-(dimethylamino)propylamine, N,N-dimethylethylenediamine, and mixtures thereof.
46. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 44, further comprising at least one C<sub>1</sub> to C<sub>16</sub> alcohol and at least one acid-containing compound.
47. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 46 further comprising an effective amount of a compound selected from the group consisting of alkyleneoxide copolymers, oxyalkylated alcohols, organo-phosphate esters, inorganic phosphate esters, polyglycols, resole resins, novalac resins and mixtures thereof.
48. (currently amended) The ~~polymeric~~ demulsifier composition according to claim 46 further comprising, an acid selected from the group consisting of arylalkylsulfonic acid; aqueous hydrochloric acid, hydrofluoric, sulfamic, acetic acid, formic acid, nitric acid, citric acid, ethylenediaminetetraacetic acid, nitriloacetic acid and mixtures thereof.
49. (currently amended) A method of treating an oil bearing formation comprising the steps of: charging an oil bearing formation with an effective amount of a ~~demulsifier or the~~ demulsifier composition according to claim 46 blended per 1000 gallons of an aqueous organic or aqueous inorganic acid solution.

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50. (currently amended) The method of treating an oil bearing formation according to claim 49 wherein the effective amount of demulsifier composition is in the range of 0.01 to about 5 gallons per 1000 gallons of an added aqueous acidic solution.
51. (currently amended) A method of preparing a polymeric demulsifier compound comprising the steps of:
- a) providing a first amine monomer having only two reactive amino hydrogens;
  - b) reacting the amine monomer with an aliphatic or cycloaliphatic monomer comprising at least two glycidyl groups or at least two epoxide groups to provide a polymeric reaction product;
  - c) capping unreacted glycidyl or epoxy groups on the polymeric reaction product with an amine monomer having only two reactive amino hydrogens and a tertiary amine group; and
  - d) alkylating amine groups on the polymeric reaction product with a N-alkylating agent-containing group to provide a polymeric demulsifier compound.
52. (currently amended) The method of claim 51 further comprising the step of adding a second amine monomer having only two reactive amino hydrogens and a tertiary amine group to the reaction.
53. (original) The method of claim 51 wherein the first amine monomer is elected from the group consisting of 2-(2-aminoethoxy) ethanol;  $\text{CH}_3\text{OCH}_2\text{CH}_2\text{O}[\text{CH}(\text{CH}_3)\text{CH}_2\text{O}]_n$   $\text{CH}_2\text{CH}(\text{NH}_2)\text{CH}_3$  where n is at least one;  $\text{CH}_3-(\text{CH}_2\text{CHRO})_n-\text{CH}_2\text{CH}(\text{CH}_3)\text{NH}_2$  where n is at least one;  $\text{CH}_3\text{O}(\text{CH}_2\text{CH}_2\text{O})_n-(\text{CH}_2\text{CRHO})_n-\text{CH}_2-\text{CH}(\text{CH}_3)-\text{NH}_2$ , where R is H or  $\text{CH}_3$ , and n is such that the ratio of  $-\text{CH}_2\text{CH}_2\text{O}$  to  $-\text{CH}_2\text{CH}(\text{CH}_3)$  is 70/30.

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54. (currently amended) The method of claim 51 further characterized by reacting 0.5 to 1.4 moles of amines having only two reactive amino hydrogens with 1.0 mole of a diglycidyl ether of a glycol or epoxidized olefin and heating the reactants to between 25 °C to 240 °C for a period of time sufficient for the reaction product to attain a viscosity of at least 80,000 cps.
55. (currently amended) The method of claim 51, further characterized by reacting 0.7 to 1.2 moles of at least one amine having only two active amino hydrogens, and a second amine monomer having only two reactive amine hydrogens and a tertiary amine group with one mole of diglycidyl ether of a glycol or epoxidized olefin between 25 °C to 240 °C for a time period sufficient for the reaction product to reach a viscosity of at least 80,000 cps.
56. (original) The method of claim 51 further characterized by grafting an N-alkylating agent onto the polymer by reacting the polymer and N-alkylating agent a weight ratio of between 1:1 to 8:1 at a pH between 7.5 and 9.0 at a temperature between 60 °C and 95 °C for a time period sufficient to reach a solution viscosity between 200 and 9000 cps.
57. (original) The method of claim 51 further characterized by grafting the N-alkylating agent onto the polymer at a weight ratio of between 1:1 to 8:1 of polymer to N-alkylating agent, at a pH between 7.5 and 9.0 and at a temperature between 85 °C and 95 °C for a time sufficient to produce a viscosity between 200 and 5000 cps.
58. (original) The method of claim 51 wherein the N-alkylating agent is epichlorohydrin capped polyalkylene glycol methyl ether.
59. (original) The method of claim 51 further comprising the step of protonating the polymeric reaction product after steps b and c with an acid.

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60. (currently amended) A polymeric demulsifier composition comprising the polymeric reaction product of

1) 0.8:1 to about 1.3:1 molar equivalents relative to diepoxy-containing compound of at least one first amine-containing group having only two reactive amino hydrogens selected from the group consisting of

(a) methylamine, ethylamine, propylamine, butylamine, sec-butylamine, isobutylamine, 3,3-dimethylbutylamine, hexylamine, benzylamine, 2-amino-1-butanol, 4-amino-1-butanol, 2-amino-2-methyl-1-propanol, 6-amino-1-hexanol, ethanolamine, propanolamine, tris(hydroxymethyl)aminomethane, 1-amino-1-deoxy-D-sorbitol (D-glucamine), 3-amino-1,2-propanediol, 2-amino-2-methyl-1,3-propanediol, 2-amino-2-ethyl-1,3-propanediol, 3-(dimethylamino)propylamine, N,N-dimethylethylenediamine, N,N-diethylethylenediamine, 1-(2-aminoethyl)piperidine, 4-(2-aminoethyl)morpholine, 2-(2-aminoethyl)-1-methylpyrrolidine, 1-(2-aminoethyl)pyrrolidine, 2-(2-aminoethyl)pyridine, 2-(2-aminoethylamino)ethanol, piperazine, 2-methyl piperazine, 2,6-dimethylpiperazine and 2-(methylamido)piperazine, N,N'-bis(2-hydroxyethyl)ethylenediamine, N,N'-dimethylethylenediamine, N,N'-dimethyl-1,4-phenylenediamine and N,N'-dimethyl-1,6-hexanediamine;

(b) amines of formula  $\text{NH}_2\text{-R1-Z1}$ ; and

(c) amines of formula  $\text{HN (R1Z1)-R3-NH- (R1Z1)}$ ;

wherein R1 is  $(\text{-CH}_2\text{-CH}_2\text{-O-})_n$ ,  $(\text{-CH}_2\text{-CH}(\text{-CH}_3)\text{-O-})_n$ , or  $(\text{-CH}_2\text{-CH}_2\text{-O-})_m\text{-(CH}_2\text{CH}(\text{-CH}_3)\text{-O-})_p$  where n, m and p are 1 to 45; R3 is a  $\text{C}_2\text{-C}_{20}$  alkylene or  $\text{C}_2\text{-C}_{20}$  substituted alkylene wherein the substituent are selected from the group consisting of alkylamido, hydroxy, alkoxy, halo, cyano, aryloxy, alkylcarbonyl, arylcarbonyl, and mixtures thereof; and Z1 is hydrogen, alkyl or acyl;

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2) at least one diepoxy-containing compound selected from compounds of formula:  
Epoxy-CH<sub>2</sub>-O-(R<sub>6</sub>-O)<sub>n</sub>-CH<sub>2</sub>-Epoxy; and Epoxy-CH<sub>2</sub>-R<sub>7</sub>-CH<sub>2</sub>-Epoxy

wherein R<sub>6</sub> is selected from C<sub>2</sub> to C<sub>20</sub> alkylene; alkyl substituted C<sub>2</sub> to C<sub>20</sub> alkylene, C<sub>2</sub> to C<sub>40</sub> alkoxy, and C<sub>2</sub> to C<sub>40</sub> hydroxy substituted alkoxy; n is 0 to 20; and R<sub>7</sub> is a C<sub>2</sub> to C<sub>20</sub> alkylene, or a substituted alkylene; and

3) at least one N-alkylating agent selected from the group consisting of epihalohydrin capped polyalkylene glycol methyl ether of formula

R<sub>8</sub>-O-[CH<sub>2</sub>-CH(R<sub>9</sub>)-O]<sub>n</sub>-CH<sub>2</sub>-CH(OH)-CH<sub>2</sub>-X

wherein R<sub>8</sub> is selected from hydrogen, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>6</sub>-C<sub>10</sub> aryl, 2-hydroxy-3-chloropropyl and 2,3-oxopropyl; R<sub>9</sub> is selected from hydrogen and C<sub>1</sub> to C<sub>6</sub> alkyl; n is 1 to 120; and X is a halogen atom.